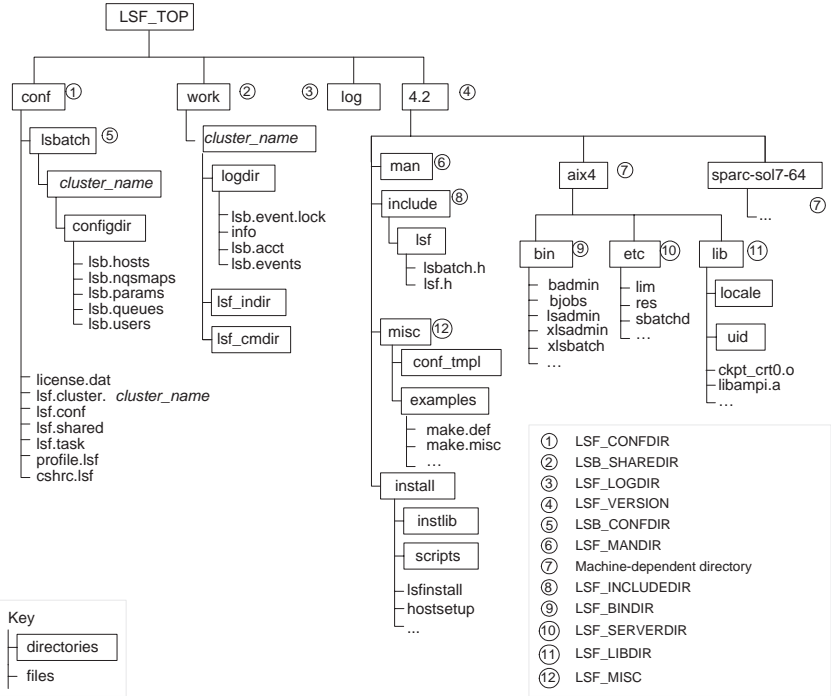# Sample UNIX installation directories

Daemon error log files

Daemon error log files are stored in the directory defined by LSF_LOGDIR in lsf.conf.

LSF Base system daemon log files	LSF Batch system daemon log files
lim.log.hostname	mbatchd.log.hostname
res.log.hostname	sbatchd.log.hostname
pim.log.hostname	

Configuration files

lsb.params is located in LSB_CONFDIR/*cluster_name*/configdir. All other files are in LSF_CONFDIR

File	Description
lsf.conf	Generic environment configuration file describing the configuration and operation of the cluster
lsf.shared	Definition file shared by all clusters. Used to define cluster name, host types, host models and site-defined resources
lsf.cluster.*cluster_name*	Cluster configuration files used to define hosts, administrators, and locality of site-defined shared resources
lsf.task	Task eligibility and resource requirement file. Applicable to all clusters
lsf.task.*cluster_name*	Task eligibility and resource requirement file. Only applicable to named cluster

File	Description
.lsftask	Task eligibility and resource requirement file. Resides in a individual user's HOME directory. Applicable only to respective user account
lsb.params	LSF Batch tunable parameters

Cluster configuration parameters

Variable	Description	UNIX Default
LSF_TOP	Top-level directory under which all LSF files are installed.	/usr/local/lsf
LSF_MACHDEP	Directory for machine-dependent LSF files: user commands, daemons, and libraries for a single host type	/usr/local/lsf
LSF_INDEP	Directory for machine-independent LSF files: man pages, configuration files, working directories, and examples	/usr/local/lsf/mnt
LSF_BINDIR	Directory for all LSF user commands	LSF_MACHDEP/bin
LSF_CONFDIR	Directory for all LSF configuration files	LSF_INDEP/conf
LSF_ENVDIR	Directory containing the lsf.conf environment configuration file for all LSF services and applications	/etc
LSF_LOGDIR	(Optional) Directory where LSF logs error messages from all servers	/tmp
LSF_LOG_MASK	Specifies the logging level of error messages from LSF Batch commands.	LOG_WARNING
LSF_MANDIR	Directory containing the LSF man pages.	LSF_INDEP/man
LSF_MISC	Help files for the LSF GUI tools, sample C programs and shell scripts, and a template for an external LIM (elim)	LSF_INDEP/misc
LSF_SERVERDIR	Directory for all server binaries and shell scripts, and external executables invoked by LSF daemons	LSF_MACHDEP/etc
LSB_CONFDIR	Directory for LSF Batch and LSF JobScheduler configuration directories for LSF Batch user and host lists, operation parameters, and batch queues	LSF_CONFDIR/lsbatch
LSB_SHAREDIR	Directory for LSF Batch and LSF JobScheduler job history and accounting log files for each cluster.	LSF_INDEP/work
LSF_LIM_PORT	TCP service port used for communication with the Load Information Manager (LIM) daemons.	6879
LSF_RES_PORT	TCP service port used for communication with the Remote Execution Server (RES) daemons.	6878
LSB_MBD_PORT	TCP service port used for communication with the Master Batch Daemon (MBD).	6881
LSB_SBD_PORT	TCP service port used for communication with the Slave Batch Daemon (SBD).	6882

Platform **LSF**®
Quick Reference

Administration and accounting commands

These commands can only be used by LSF administrators or root

Command	Description
lsfinstall	Install LSF using command-line options or lsfinst.inf input file
lsfsetup	Menu-driven LSF installation, upgrade and configuration utility
lsfstartup	Start the LSF daemons on all hosts in the local cluster
lsfrestart	Restart the LSF daemons on all hosts in the local cluster
lsfshutdown	Shut down the LSF daemons on all hosts in the local cluster
lsadmin	LSF administrative tool to control the operation of the LIM and RES daemons in an LSF cluster Enter lsadmin help for a list of subcommands
badmin	LSF administrative tool to control the operation of the LSF Batch system including sbatchd, mbatchd, hosts and queues Enter badmin help for a list of subcommands
xlsadmin	Motif-based graphical application for LSF administration
brun	Forces LSF to run a submitted, pending job immediately on a specified host. Can only be used by the LSF Administrator
bacct	Reports accounting statistics on completed jobs in the LSF Batch system

Daemons

Executable Name	Description
lim	Load Information Manager (LIM)—collects load and resource information about all server hosts in the cluster and provides host selection services to applications through LSLIB. LIM maintains information on static system resources and dynamic load indices.
mbatchd	Master Batch Daemon (MBD)—accepts and holds all batch jobs. MBD periodically checks load indices on all server hosts by contacting the Master LIM and dispatches a job to SBD on the execution host.
sbatchd	Slave Batch Daemon (SBD)—accepts job execution requests from MBD, and monitors the progress of jobs. Controls job execution, enforces batch policies, reports job status to MBD, and launches MBD.
pim	Process Information Manager (PIM)—monitors resources used by submitted jobs while they are running. This information is used to enforce resource limits and load thresholds as well as for fairshare scheduling.
res	Remote Execution Server (RES)—accepts remote execution requests from all load sharing applications and handles I/O on the remote host for load sharing processes

User commands

Command	Description
bacct	Displays accounting statistics about finished jobs
bbot	Moves a pending job relative to the last job in the queue
bchkpnt	Checkpoints a checkpointable job
bclusters	Displays information about local MultiCluster queues
bhist	Displays historical information about jobs
bhosts	Displays hosts and their static and dynamic resources
bhpart	Displays information about host partitions
bjobs	Displays information about jobs
bkill	Sends a signal to a job
bmgroup	Displays information about host groups
bmig	Migrates a checkpointable or rerunnable job
bmod	Modifies job submission options
bparams	Displays information about tunable batch system parameters
bpeek	Displays stdout and stderr of unfinished jobs
bpost	Sends a messages and attaches data files to a job
bqueues	Displays information about batch queues
bread	Reads messages and attached data files from a job
brequeue	Kills and requeues a job
brestart	Restarts a checkpointed job
bresume	Resumes a suspended job
bstatus	Reads or sets external job status messages and data files
bstop	Suspends a job
bsub	Submits a job
bswitch	Moves unfinished jobs from one queue to another
btop	Moves a pending job relative to the first job in the queue
bugroup	Displays information about user groups
busers	Displays information about users and user groups
ch	Changes to the host on which subsequent commands are to be executed
lsacct	Displays accounting statistics on finished LSF Base tasks
lsclusters	Displays information about LSF clusters
lseligible	Displays whether a task is eligible for remote execution
lsgrun	Executes a task on a set of hosts
lshosts	Displays hosts and their static resource information
lsid	Displays the current LSF version number, cluster name and the master host name
lsinfo	Displays load sharing configuration information
lsload	Displays dynamic load indices for hosts
lsltasks	Displays or updates a user's local task list
lsmon	Displays dynamic load indices in real time and updates periodically
lsplace	Displays hosts available for task execution
lsrcp	Remotely copies files using LSF Base

Command	Description
lsrtasks	Displays or updates a user's remote task list
lsrun	Runs an interactive task through LSF Base
xbmod	Motif-based graphical user interface for job modification
xbsub	Motif-based graphical user interface for job submission
xlsbatch	Motif-based graphical user interface for LSF Batch
xlsmon	Motif-based graphical user interface for cluster load monitoring

bsub command

Syntax

bsub [*options*] *command* [*arguments*]

Options

Option	Description
-B	Sends email to you when the job is dispatched and begins execution
-H	Holds the job in the PSUSP state when the job is submitted
-I	Batch interactive job. Blocking. -Ip creates a pseudo-terminal. -Is creates a pseudo-terminal with shell mode support.
-K	Submits a job and waits for the job to finish
-N	Emails the job report to you when the job finishes
-r	Rerun
-x	Exclusive execution
-b *begin_time*	Dispatches the job on or after the specified date and time in the form [[*month*:]*day*:]*hour*:*minute*
-C *core_limit*	Sets a per-process (soft) core file size limit (KB) for all the processes that belong to this job
-c *cpu_time*[/*host_name*	/*host_model*]	Limits the total CPU time the job can use. CPU time is in the form [[*month*:]*day*:]*hour*:*minute*
-D *data_limit*	Per-process (soft) data segment size limit (KB) for each process that belong to the job
-e *error_file*	Stores the standard error output of the job in the specified error file
-E "*pre_exec_command* [*arguments* ...]"	Runs the specified pre-exec command on the execution host before running the job
-f "*local_file op* [*remote_file*]" ...	Copies a file between the local (submission) host and the remote (execution) host. *op* is one of >, <, <<, ><, <>
-F *file_limit*	Per-process (soft) file size limit (KB) for each process that belong to the job
-G *user_group*	Associates job with a specified user group
-i *input_file*	-is *input_file*	Gets the standard input for the job from specified file

Option	Description
-J "*job_name*[*index_list*] %*job_slot_limit*"	Assigns the specified name to the job. For job arrays, specifies the indices of the job array and the maximum number of jobs that can run at any given time. *Index_list* has the form *start*[-*end*[:*step*]], where *start*, *end*, and *step* are positive integers.
-k "*chkpnt_dir* [*chkpnt_period*] [method=*method_name*]"	Makes a job checkpointable and specifies the checkpoint directory, checkpoint period in minutes, and checkpoint method
-L *login_shell*	Initializes the execution environment using the specified login shell
-m "*host_name*[+[*pref_level*]]	*host_group*[+[*pref_level*]] ..."	Runs job on one of the specified hosts. Use plus (+) after the names of hosts or host groups to indicate a preference. Optionally, use a positive integer to indicate a preference level. Higher numbers indicate greater preferences for those hosts. Specify the keyword others to refer to other hosts not listed.
-M *mem_limit*	Specify the memory limit (KB)
-n *min_proc*[,*max_proc*]	Specifies the minimum and maximum numbers of processors required for a parallel job
-o *output_file*	Appends the standard output of the job to the specified file path
-P *project_name*	Assigns job to specified project
-q "*queue_name* ..."	Submits job to specified queues
-R "*res_req*"	Specifies host resource requirements
-sp *priority*	Specifies user-assigned job priority which allow users to order their jobs in a queue
-S *stack_limit*	Sets a per-process (soft) stack segment size limit (KB) for each of the processes that belong to the job
-t *term_time*	Specifies the job termination deadline in the form [[*month*:]*day*:]*hour*:*minute*
-u *mail_user*	Sends mail to the specified email address
-w '*dependency_expression*'	LSF will not place your job unless the dependency expression evaluates to TRUE.
-W *run_time*[/*host_name*	/*host_model*]	Sets the run time limit of the job. Run time is in the form [[*month*:]*day*:]*hour*:*minute*.
-Zs	Spools command file to the directory specified by the JOB_SPOOL_DIR in lsb.params, and uses spooled file as the command file for the job
-h	Prints command usage to stderr and exits
-V	Prints LSF release version to stderr and exits

Platform